Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-20 are pending in the application and claims 9-11 and 14-18 withdrawn from examination by the examiner as being drawn to a non-elected invention. Claims 1, 2 and 12 and new claims 21 and 22 are independent claims. Claim 4 is sought to be cancelled, without prejudice to or disclaimer of the subject matter therein. New claims 21-23 are sought to be added. Support for the amendments is found as follows. The amendment to claim 1 merely re-writes the wording of the claim to further clarify the subject matter, but does not add new material to the claim. Support for the cancelled subject matter of claims 2 and 4 is found in originally-filed SEQ ID NOS: 3 and 4, now deleted and throughout the originally-filed specification, as well as in SEQ ID NOS: 1 and 2. Support for new claims 21-23 is found in originally-filed claims 1 and 2 and paragraph 26 of the specification. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, applicant respectfully requests that the examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Objection to the Specification

The examiner objected to the specification because the "the same sequences are assigned different sequence identifiers such as SEQ ID NOs: 1 and 3 and SEQ ID NOs: 2 and 4, respectively." The examiner required that a substitute corrected Sequence Listing and a computer readable form thereof accompanied by the amendment to the specification and Figures. Additionally, the examiner requested the applicant to indicate to which residues in SEQ ID NO: 19, the sequences of SEQ ID NOS: 6, 8, 10, 12, 14, 16 and 18, correspond.

To comply with the requirements set forth by the examiner, a substitute corrected Sequence Listing and a Computer Readable Form has been submitted, which deletes SEQ ID NOS: 3 and 4. Additionally, the Specification has been amended accordingly. Additionally, the attached **Exhibit A** lists the regions of SEQ ID NOS: 2 and 19 which correspond to SEQ ID NOS: 6, 8, 10, 12, 14, 16, and 18.

Additionally, it has come to the attention of the applicant, that the amendment to the specification filed May 10, 2002 contained an error in paragraph [0041]. The sequence "MTTAITLGGLLLKGIIITLV" should have been "MTTAITLGGLLLKGIITLV" [emphasis added by applicant for clarification]. Paragraph [0041], as originally filed, had the correct sequence listed, thus the amendment of paragraph [0041] herein, does not introduce new matter.

The examiner has objected to the specification "because it is unclear what "BF100" stands for in Table 2, page 22 and at Figures 4-6, for example." BF100 is designated as NRRL B-11474.

Objections to the Drawings

The objection to the Drawings has been discussed on a separate sheet, labeled "Drawing Amendments," above.

Objections to the Claims

The applicant acknowledges that the examiner has held claim 3 to be objected to as dependent from rejected claim 2 and that the examiner considered the claim allowable if it included all the limitations of the base claim. The applicant believes that the abovementioned amendment to claim 2 has addressed the concerns of the examiner, and request that the objection be withdrawn. The applicant further requests clarification from the examiner regarding claim 4, which is listed on the cover page 1, of the Office action as being objected to, but was cited on page 6 as being objected to, but contained in the section regarding statutory double patenting, as discussed below.

The applicant acknowledges that the examiner has held 19 to be objected to as dependent for non-elected claim 18 and that the examiner considered the claim as if it included all the limitations of claim 18. The applicant believes that the abovementioned amendment to claim 19 has addressed the concerns of the examiner, and requests that the objection be withdrawn.

Rejections under 35 U.S.C. § 101

The examiner has imposed a rejection under 35 U.S.C. § 101. The basis for the rejection was stated by the examiner as being a statutory double patenting rejection over claims 3 and 4. The examiner stated that "should claim 3 be found allowable, claim 4 *will be objected to under 37 C.F.R. 1.75* as being a substantial duplicate thereof." [emphasis added by applicant] The examiner further stated that "both claims are drawn to the same nucleotide sequence."

The applicant request further clarification from the examiner regarding the rejection under 35 U.S.C. § 101, when the explanation of the rejection was based upon an *objection* under 37 C.F.R. § 1.75. M.P.E.P. 804(I) states, "A double patenting issue may arise between two or more pending applications, between one or more pending applications and a patent, or between one or more pending applications and a published application." M.P.E.P. 804(II)(A) further states, "In determining whether a statutory basis for a double patenting rejection exists, the question to be asked is: Is the same invention being claimed twice?" 804(II)(A), Paragraph 2, states that the basis for a Double Patenting rejection under 35 U.S.C. §101 is that "[a] reliable test for double patenting under 35 U.S.C. §101 is whether a claim in the application could be literally infringed without literally infringing a corresponding claim in the patent. *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970)."

The following is a quotation of 35 §U.S.C. 101:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

It is apparent from the M.P.E.P. and a fair reading of the statute under 35 U.S.C. § 101, that a statutory double patenting rejection is appropriate between 2 patents, or a pending application and an issued patent, but not between 2 claims within one application. The applicant requests that if the examiner has properly rejected claims 3 and 4, that she inform the applicant which patent has issued with identical claims.

The applicant believes the rejection was supposed to have been an objection, drawn to two claims as being substantial duplicates of each other. The applicant has cancelled claim 4, and thus believes that the objection has been overcome and requests the examiner withdraw the rejection under 35 U.S.C. § 101 and/or the objection to the claim.

Rejections under 35 U.S.C. § 112

The examiner has also rejected claims1, 5-8, 12, 13, 19 and 20 under 35 U.S.C. § 112, first paragraph as "containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention." The examiner asserts that claim 1 recites "a mutant pyruvate carboxylase containing at least one mutation selected from the group consisting of seven specific mutations in SEQ ID NO:19. Since the number of allowed mutations is not limited in terms of the mutant's sequence homology to SEQ ID NO:19, this amounts to any structure." [emphasis added by examiner] The examiner continues that "the specification fails to describe any other representative species by any identifying characteristics or

properties other than the "functionality" of being "desensitized to feed back inhibition by aspartic acid" and fails to provide any structure: function correlation present in all members of the claimed genus."

The applicant points out that he has identified seven (7) mutations, a different full-length sequence, SEQ ID NO: 2 which contains the mutations and which still provides enzymatic activity and yet are resistant to feedback inhibition by aspartate, as well as a full-length non-mutated sequence, SEQ ID NO:19. The structure of pyruvate carboxylase was well-known at the time the invention was made, as evidenced by two references cited in the specification in paragraph [0002], page 1 and paragraph [0003], page 3 (Modak, H. V. and Kelly, D. J., *Microbiology 141*:2619-2628 (1995) and (Attwood, P. V., *Int. J Biochem. Cell. Biol. 27*:231-249 (1995)). Both references were also provided to the examiner in the Information Disclosure Statement filed August 19, 2002 and initialed by the examiner in the present Office Action.

Figure 10, page 242 of Attwood (*Int. J Biochem. Cell. Biol., supra)* highlights the map of a 1178 amino acid sequence of pyruvate carboxylase from yeast and the amino acid residues of each site responsible for binding and activity of the enzyme. Attwood also describes on page 242, columns 1 and 2 that the region between amino acid residues 559 and 913 was conserved between yeast pyruvate and transcarboxylase (which binds pyruvate). Modak and Kelly describes sequence homology among various biotin carboxylases at the N-terminus, the biotinyl domain, which corresponds to the mutation identified in SEQ ID NO: 16 (residues 1127-1139 of SEQ ID NO: 2 and residues 1110-1122 of SEQ ID NO:19). There was also homology between residues 157-333 and

residues 353-468 of Attwood correspond to SEQ ID NOS: 6, 8, 10 and 12 and SEQ ID NO: 14, respectively (see **Exhibit A**). Attwood identifies these two regions as a first partial reaction domain (ATP/HCO_3^- binding) site having homology with acetyl Co-A carboxylase. Modak and Kelly on page 2625, column 1, describes the inhibition of acetyl Co-A activation in the presence of aspartate. Note that none of the mutations listed in **Exhibit A** are located in the 559-913 amino acid region identified by Attwood as being required for pyruvate binding, and thus would be required for activity. Although the carboxylase by Attwood is not from the same species, it is apparent from the disclosures of Attwood and Modak that there is a great deal of conservation among different enzymes of this class from different species (see also Figure 6 of Modak and Kelly, which compare the N-terminus from various species and similar enzymes).

Therefore, one of skill in the art would have in his or her possession, the structure and function relationship for this well-characterized enzyme, in which the applicant have isolated mutations corresponding to known regions with known functions. The applicant maintains that the disclosure of the specification was sufficient that one of skill in the art would have determined that the applicant had possession of the invention at the time the invention was filed.

According to the Interim Written Description Guidelines, the specification and claim must indicate what distinguishing attributes shared by the members of the genus. Also, the specification and claim should specify a limit on the number of amino acid substitutions, deletions, insertions and/or additions that may be made to a sequence, in the present case, SEQ ID NO: 2 and or to the non-mutated SEQ ID NO: 19.

The specification and claim indicates what distinguishing attributes shared by the members of the genus. The reference by Attwood, incorporated by reference into the specification specifies a limit on amino acid substitutions, deletions, insertions and/or additions that may be made to a highly homologous sequence to SEQ ID NO: 2 or to the non-mutated SEQ ID NO: 19. The active site is identified in Figure 10, and none of the claimed or disclosed sequences in the present application falls within the active site of the enzyme. The activity of the claimed pyruvate carboxylase also provides functional requirements to the claimed invention. Thus, although the scope of the claim includes mutations which may include numerous structural variants, the genus is not highly variant because the structural differences between genus members is permitted only within the disclosed and known ATP/HCO_3^- and biotin binding sites, but not within the identified active site. Thus, the specification provides guidance to one of skill in the art, as to what changes should be made and what structural features that could distinguish compounds in the genus from others in the protein class (i.e. pyruvate carboxylase activity that is not subject to aspartate feedback inhibition). Thus, the specification provides common structural attributes to identify the members of the genus and the general knowledge and level of skill in the art supplements description because specific guidance is provided. Since the disclosure describes the common attributes of pyruvate carboxylase activity not subject to feedback inhibition by aspartate, that identify members of the genus of the present invention, and because the genus is highly invariant, the disclosure of SEQ ID NOS: 2 and 19, as well as the mutations contained in SEQ ID NO: 2, is sufficient to describe the genus. One of skill in the art would reasonably

conclude that the disclosure provides a representative number of species to describe the genus. Thus, applicant was in possession of the claimed genus.

The examiner has also rejected claims 19 and 20, asserting that SEQ ID NOS: 6, 8, 10, 12, 14, 16 and 18 are only 13-18 amino acids in length and "[t]he specification does not contain any disclosure of the function of all DNA sequences encoding polypeptides that comprise said sequences." The applicant refers the examiner to **Exhibit A**, which demonstrates that the sequences are fragments of SEQ ID NOS: 2 and 19. SEQ ID NO: 2 has enzymatic activity, but lacks the aspartate feedback inhibition, as described above. The applicant has disclosed seven (7) fragments which impart the altered activity of the pyruvate carboxylase of the invention. The applicant, therefore asserts that there is sufficient description in the specification as filed, as described above.

The examiner has also rejected claims 1, 5-8, 12, 13, 19 and 20 under 35 U.S.C. § 112, first paragraph as being enabled for a DNA encoding SEQ ID NO: 2, but not enabled for a DNA encoding a mutant pyruvate carboxylase that is desensitized to feedback inhibition by aspartic acid. The examiner states that "said mutant pyruvate carboxylase having an amino acid sequence of unknown homology to SEQ ID NO: 19 containing <u>at least</u> one (or seven) specific mutations or a specific fragment. [emphasis added by applicant.] It does not reasonably provide enablement for a DNA encoding a polypeptide of unknown function having an amino acid sequence of unknown homology to SEQ ID NO:19 containing a specific fragment. The examiner asserted that in view of the factors set forth in *In re Wands* 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir. 1988),

undue experimentation would be required by one of skill in the art to practice the invention. The examiner asserts that

> one of ordinary skill would require guidance, such as information regarding the specific amino acid changes that would render a pyruvate decarboxylase desensitized to feedback inhibition by aspartic acid, in order to make a mutant pyruvate carboxylase with the requisite property other than a mutant pyruvate carboxylase of SEQ ID NO: 2 in a manner reasonably correlated with the scope of the claims. Without such guidance, the experimentation left to those skilled in the art is undue.

As discussed, *supra*, the disclosure of the present application combined with the disclosed references of Modak, H. V. and Kelly, D. J., (*Microbiology 141*:2619-2628 (1995)) and Attwood, P. V., (*Int. J Biochem. Cell. Biol. 27*:231-249 (1995)), which describe what was known in the art at the time the application was filed provides sufficient guidance to one of skill in the art to arrive at the claimed invention for the reasons discussed *supra*.

The applicant again points out the specification identified seven (7) mutations, and a different full-length mutated sequence, SEQ ID NO: 2 which display enzymatic activity and yet are resistant to feedback inhibition by aspartate. The structure of pyruvate carboxylase was well-known at the time the invention was made, as evidenced by two references cited in the specification in paragraph [0002], page 1 and paragraph [0003], page 3 (Modak, H. V. and Kelly, D. J., *Microbiology, supra*) and (Attwood, P. V., *Int. J Biochem. Cell. Biol., supra*).

As described above, Figure 10, page 242 of Attwood (*Int. J Biochem. Cell. Biol., supra)* highlights the map of a 1178 amino acid sequence of pyruvate carboxylase from yeast and the amino acid residues of each site responsible for binding and activity of the

enzyme. Attwood also describes on page 242, columns 1 and 2 that the region between amino acid residues 559 and 913 was conserved between yeast pyruvate and transcarboxylase (which binds pyruvate). Modak and Kelly describes sequence homology among various biotin carboxylases at the N-terminus, the biotinyl domain, which corresponds to the mutation identified in SEQ ID NO: 16 (residues 1127-1139 of SEQ ID NO: 2 and residues 1110-1122 of SEQ ID NO:19). There was also homology between residues 157-333 and residues 353-468 of Attwood correspond to SEQ ID NOS: 6, 8, 10 and 12 and SEQ ID NO: 14, respectively (see **Exhibit A**). Attwood identifies these two regions as a first partial reaction domain (ATP/HCO_3^- binding) site having homology with acetyl Co-A carboxylase. Modak and Kelly on page 2625, column 1, describes the inhibition of acetyl Co-A activation in the presence of aspartate. None of the mutations listed in **Exhibit A** are located in the 559-913 amino acid region identified by Attwood as being required for pyruvate binding, a site required for activity. Although the carboxylase by Attwood is not from the same species, it is apparent from the disclosures of Attwood and Modak that there is a great deal of conservation among different enzymes of this class from different species (Figure 6 of Modak and Kelly). One of skill in the art would be able given the disclosure of the present invention and the known art of Attwood, and Modak and Kelly, to predict the regions of the pyruvate carboxylase enzyme to mutate to arrive at a pyruvate carboxylase with the claimed activity of loss of feedback inhibition of aspartate, yet still maintaining enzymatic activity.

The examiner additionally states that "claims 19 and 20 encompass DNAs encoding poplypeptide of unknown function in addition to polypeptides with the requisite pyruvate carboxylase activity. It would require undue experimentation to establish the function of all polypeptides comprising the recited fragements. Without knowing the function of a polypeptide, it is impossible to know how to use it and a DNA encoding thereof."

The applicant asserts that since the function of each region corresponding to each encoded fragment is known, (see **Exhibit A**), then the specification, along with the knowledge in the art at the time the application was filed (see Attwood, and Modak and Kelly) would enable one of skill in the art to know how to make and use the claimed invention without undue experimentation, and therefore the applicant requests withdrawal of the rejection.

The examiner has also rejected claim 2 under 35 U.S.C. § 112, first paragraph as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to know how to make and/or use the invention. In particular, the examiner states that the DNA contained in Deposit Number NRRL B-30293 is required to practice the invention. The examiner states that the applicant provides assurances or a statement that a deposit has been made to satisfy 37 C.F.R. § 1.802 and 37 C.F.R. § 1.808.

Assurance is hereby given that the bacterial strain contained in Deposit Number NRRL B-30293 was deposited under the terms of the Budapest treaty on May 30, 2000. The deposits were made at the United States Department of Agriculture-Agriculture

Research Service-National Center for Agriculture Utilization Research (USDA-ARS-NCAUR), 1815 North University Street, Peoria Illinois 61604-3999, and given the accession number of NRRL B-30293. Assurance is also hereby given that the deposited bacterial strains are the same as the bacterial strains described in the specification and that the deposited bacterial strains were in the Applicant's possession at the time of filing (see attached deposit receipt). Finally, assurance is hereby given that all restrictions on the availability to the public of the deposited bacterial strains will be irrevocably removed upon the granting of a patent, subject to 37 C.F.R. § 1.808(b). Withdraw of this rejection is respectfully requested as the Applicant has provided the necessary assurances required by the Examiner for USDA-ARS-NCAUR Deposit Nos. NRRL B-30293.

The applicant has provided the Viability Statement from the Agricultural Research Service Culture Collection and the requisite statement. The applicant therefore believes that the requirements set forth by the examiner have been met and respectfully requests that the rejection be withdrawn.

Claims 1, 2, 5-8, 12 and 13 have been rejected under 35 U.S.C. 112, second paragraph as being indefinite, because the examiner asserts that claim 1

> is confusing as it is unclear that it drawn [sic] to a DNA encoding a mutant pyruvate carboxylase with the requisite property having an amino acid sequence that differs from the wild-type sequence of SE ID NO: 19. Furthermore, since the specification consistently uses the term "feed-back resistant", the term "desensitizes" in claim 1 renders the claim unclear.

The examiner also rejected claim 2 as indefinite because the examiner asserts that the claim "is confusing as reciting different fragments of the same sequence under different SEQ ID Nos. Furthermore, the term "complementary" can mean different

degree of complementarily [sic] rendering the metes and bound [sic] of the claim unascertainable."

The amendment to claim 1 further clarifies that the recited mutations reference SEQ ID NO: 19.

Additionally, the examiner was concerned that the wording of "desensitizes" in claim 1 rendered the claim indefinite. The applicant draws the attention of the examiner to paragraph [0015], which uses the same wording as is found in the claim, and paragraphs [0066] and [0067], which discuss the *sensitivity* of ATCC 21253 and NRRL B-11474 to aspartate. The applicant also provides the examiner with a definition of "desensitize," found in the *American Heritage Dictionary of the English Language: Fourth Edition*, (Houghton Mifflin Company, on-line version, (2000); **Exhibit B**) which states that "desensitize," or its inflective form, "desensitizes," means "[t]o render insensitive or less sensitive." The applicant also provides the examiner with the definition of "sensitive" as meaning, "[r]esponsive to external conditions or stimulation," **(Exhibit C)** It is clear from these definitions and the disclosure of the specification, that the tern "desensitizes" means to render the enzyme less sensitive to the external condition of the presence of aspartate than is the case with the pyruvate carboxylase of SEQ ID NO:19. To further clarify the wording for the examiner, the applicant intend "desensitize to feedback inhibition by aspartic acid" to be equivalent to "resistant to feedback inhibition by aspartic acid," as supported by context in the specification.

The examiner was further concerned about the numbering of the sequences, which is believed to be addressed in **Exhibit A**.

The examiner's concerns about the word "complementary" in claim 2 is believed to be addressed in the amendment of the claim, by the insertion of the word "completely," prior to the word "complementary."

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Michele A. Cimbala
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Date: 8/22/03

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SKGF Rev. 4/22/03 mac; 7/15/03 svb

EXHIBIT A

Listed below are the regions of SEQ ID NOS: 2 and 19 that correspond to SEQ ID NOS: 6, 8, 10, 12, 14, 16 and 18:

SEQ ID NO.	Corresponding to Residues
6	164 through 176 in SEQ ID NO. 2
	147 through 159 in SEQ ID NO. 19
8	193 through 205 in SEQ ID NO. 2
	176 through 188 in SEQ ID NO. 19
10	217 through 229 in SEQ ID NO. 2
	200 through 212 in SEQ ID NO. 19
12	238 through 250 in SEQ ID NO. 2
	221 through 233 in SEQ ID NO. 19
14	466 through 478 in SEQ ID NO. 2
	449 through 461 in SEQ ID NO. 19
16	1127 through 1139 in SEQ ID NO. 2
	1110 through 1122 in SEQ ID NO. 19
18	1 through 18 in SEQ ID NO. 2
	~~1 through 17 in SEQ ID NO. 19~~

The American Heritage® Dictionary of the English Language: Fourth Edition. 2000.

desensitize

SYLLABICATION: de·sen·si·tize

PRONUNCIATION: dē-sĕn'sĭ-tīz'

TRANSITIVE VERB: Inflected forms: **de·sen·si·tized, de·sen·si·tiz·ing, de·sen·si·tiz·es**
1. To render insensitive or less sensitive. **2.** *Immunology* To make (an individual) nonreactive or insensitive to an antigen. **3.** To make emotionally insensitive or unresponsive, as by long exposure or repeated shocks: *"This movie in effect may resensitize people who thought they were desensitized to violence"* (Steven Spielberg, *(quoted in) San Francisco Chronicle* July 16, 1998). **4.** To make (a photographic film or substance) less sensitive to light.

OTHER FORMS: **de·sen'si·ti·za'tion** (-tĭ-zā'shən) —NOUN
de·sen'si·tiz'er —NOUN

The American Heritage® Dictionary of the English Language: Fourth Edition. 2000.

sensitive

SYLLABICATION: sen·si·tive

PRONUNCIATION: sĕn'sĭ-tĭv

ADJECTIVE: **1.** Capable of perceiving with a sense or senses. **2.** Responsive to external conditions or stimulation. **3.** Susceptible to the attitudes, feelings, or circumstances of others. **4.** Quick to take offense; touchy. **5.** Easily irritated: *sensitive skin.* **6.** Readily altered by the action of an agent: *film that is sensitive to light.* **7.** Registering very slight differences or changes of condition. Used of an instrument. **8.** Fluctuating or tending to fluctuate, as in price: *sensitive stocks.* **9.** Of or relating to classified information: *sensitive defense data; holds a sensitive position in the State Department.*

NOUN: **1.** A sensitive person. **2.** One held to be endowed with psychic or occult powers.

ETYMOLOGY: Middle English, from Old French *sensitif*, from Medieval Latin *sēnsitīvus*, from Latin *sēnsus*, sense. See sense.

OTHER FORMS: **sen'si·tive·ly** —ADVERB
sen'si·tive·ness —NOUN

OF MICROORGANISMS FOR THE PURPOSE OF THE PROCEDURE

INTERNATIONAL FORM

TO
ADM
1001 N. Brush College Road
Decatur, IL 62521

VIABILITY STATEMENT

issued pursuant to Rule 10.2 by the INTERNATIONAL DEPOSITARY AUTHORITY identified at the bottom of this page

NAME AND ADDRESS OF THE PARTY TO WHOM THE VIABILITY STATEMENT IS ISSUED

I. DEPOSITOR	II. IDENTIFICATION OF THE MICROORGANISM
Name: ADM Address: 1001 N. Brush College Road Decatur, IL 62521	Depositor's taxonomic designation and accession number given by the INTERNATIONAL DEPOSITARY AUTHORITY: *Escherichia coli* NRRL B-30293 Date of: May 12,2000 [X] [2] Original Deposit [ ] [2] New Deposit [ ] [2] Repropagation of Original Deposit

III. (a) VIABILITY STATEMENT

Deposit was found: [X] Viable [ ] Nonviable on May 13, 2000 (Date)

International Depositary Authority's preparation was found viable on May 29, 2000(Date)[3]

III. (b) DEPOSITOR'S EQUIVALENCY DECLARATION

Depositor determined the International Depositary Authority's preparation was

[X] [2] Equivalent [ ] [2] Not equivalent to deposit on 6/14/00 (Date)

Signature of Depositor [signature]

IV. CONDITIONS UNDER WHICH THE VIABILITY TEST WAS PERFORMED (Depositors/Depositary)[4]

LB broth supplemented with 100 ug/ml ampicillin

V. INTERNATIONAL DEPOSITARY AUTHORITY

Name: Agricultural Research Culture Collection (NRRL) International Depositary Authority Address: 1815 N. University Street Peoria, Illinois 61604 U.S.A.	Signature(s) of person(s) having the power to represent the International Depositary Authority or of authorized official(s): [signature] Date: 6-1-00

[1] Indicate the date of the original deposit or when a new deposit has been made.
[2] Mark with a cross the applicable box.
[3] In the cases referred to in Rule 10.2(a)(ii) and (iii), refer to the most recent viability test.
[4] Fill in if the information has been requested.